

**FY15 Secretary of Defense Environmental Award
Sustainability/Industrial Installation
Tobyhanna Army Depot**

INTRODUCTION.

Tobyhanna Army Depot (TYAD) is a recognized leader in providing World-Class Logistics Support for Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Systems across the Department of Defense. TYADs Corporate Philosophy, dedicated workforce and electronics expertise ensure the depot is the Joint C4ISR provider of choice for all branches of the Armed Forces and our industry partners.

TYADs unparalleled capabilities include full-spectrum logistics support for sustainment, overhaul and repair, fabrication and manufacturing, engineering design and development, systems integration, Post Production Software Support, technology insertion, modification, Foreign Military Sales and Global Field support to our Joint Warfighters.

TYAD has a workforce of 3,300 government and contract employees who perform 130 unique jobs, including engineers, electronics-mechanics, computer specialists and industrial trade workers. TYAD is the largest employer in the region with an annual economic impact of \$2.8 billion.

Located in Monroe County, Pennsylvania, in the Pocono Mountain region, the 1,336-acre depot is bounded by state parks and game lands, and houses a 158-acre wetlands preserve and the headwaters of Hummler Run, a high quality-cold water fishing stream.



Over 107,000 square feet of green roofs installed at TYAD have become a symbol towards our commitment to sustainable development.

BACKGROUND.

TYAD is registered and third-party certified to the International Organization for Standardization (ISO) 14001:2004 Environmental Management System, as well as ISO 9001-

2008 Quality Management System, Aerospace Standard (AS) 9100, AS9110, Occupational Health and Safety Administration's Voluntary Protection Program and Occupational Health and Safety Assessment 18001.

The Environmental Branch (EB) personnel operate within the Risk Management Division, Directorate of Installation Services which reports to the TYAD Commander on environmental compliance and environmental sustainability initiatives. EB personnel utilize compliance inspections and ISO 14001 internal and external audits to detect environmental deficiencies and initiate corrective actions. Objectives and targets are established emphasizing areas of focus, prevention and corrective actions. Through a focused environmental review program, TYAD ensures that environmental sustainability is integrated into future construction and renovation projects.

The EB focus is that successful environmental programs are not made in a year, but developed over time through a vision of sustainability and continuous improvement. This vision is evident in our work and aggressive program goals that are developed by individual program managers within the branch. Through weekly team meetings, a focused team approach facilitates the flow of ideas and ensures that cross-program strategies are developed.

This manifests itself in many areas. For example, TYAD has sustained a recycling rate of over 50% of the solid waste stream throughout the past 2 years, TYAD recycled 1.5 and 2.1 million pounds in FY14 and FY15, respectively, resulting in sales of \$706,516.76 and a cost avoidance of \$195,854.86. The revenue gained through the recycling of materials is used to manage the program, invest in environmental and safety related projects and to support Moral Welfare and Recreation projects that provide quality of life programs to the workforce.

LIVING COMMUNITIES AND MASTER PLANNING.

TYAD has a cross-functional design team that blends skills and experience from the functional areas of Public Works, Environmental Management and Industrial Modernization. The expanded knowledge base and flexibility of the design team allows TYAD to apply best management practices from multiple disciplines to all phases of project development.

National Environmental Policy Act (NEPA):

TYADs NEPA process ensures that all projects receive a thorough environmental review. Before a project is started, it is given an environmental review using a Record of Environmental Consideration (REC), Environmental Assessment or an Environmental Impact Statement. Environmental Branch staff evaluates each project for 35 functional areas, including pollution prevention, recycling, energy conservation, water conservation, water quality, hazardous materials, lead, asbestos, erosion control, natural and cultural resources and pest management. RECs are given a thorough review and processed within 7 to 14 days. The EB processed 84 NEPA RECs in FY14 and 68 in FY15. By completing a programmatic

review of each project, TYAD ensures that both mission and base-related projects receive proper consideration for environmental quality and sustainability.

The benefits of the EB's NEPA reviews can be seen in projects such as the FY15 completion of TYADs building 2 renovation. These reviews saw the incorporation NEPA review suggestions including hybrid daylight/LED lighting systems, sustainable flooring surfaces, increased efficiency natural gas heating systems and noise isolating panels.

Cleanup of Industrial Use Area:

TYAD follows the Pennsylvania Act II Brownfields cleanup regulations to cleanup building space that has been contaminated by industrial use for future workload needs. In FY14 the old Photo Fabrication space of approximately 10,000 square feet was demolished and debris removed to include 100,000 pounds of hazardous waste brick and 4,000 pounds of wash water. Wipe samples were taken of the walls and floor to determine levels of clean and areas were re-cleaned accordingly. Using residential cleanup criteria from Act II, TYAD now has no restriction on the ability to re-use this space and protect its employees from potential future exposure. It is currently planned for bench top operations (an expansion of the Electro-Optics/Night Vision mission area). By removing the contaminated source, potential future pathways for contamination to the environment has also been eliminated.

COMPLIANCE WITH EXECUTIVE ORDER (EO) 13693, PLANNING FOR FEDERAL SUSTAINABILITY IN THE NEXT DECADE, 19 MAR 15.

Upgraded Wastewater Treatment Plant (WTP):

In FY14 construction was completed on an upgraded wastewater treatment plant. The old WTP consisting of settling basins, trickling filter and sand filtration was replaced with a sequencing batch reactor. [EO 13693, Section 3(f)]

From the initial design process to project completion, numerous obstacles had to be overcome including a workforce shift from over 5,000 employees to 3,000 employees and the issuance of a new National Pollutant Discharge Elimination System Permit which included new chemical parameters and new discharge limits on parameters such as Total Dissolved Solids, Total Nitrogen and Fecal Coliform.

Since the initial design was based on a higher population level, the completed plant was optimized by TYAD personnel working with the design engineer. Plant optimization included:

- Adding a soda ash slurry to increase plant-wide alkalinity levels to increase removal efficiency of ammonia and nitrates.
- Modification to the programmable logic controller programming adjusting the batch treatment schedule for the new lower flows.

Since being online, the wastewater treatment plant has decreased permit excursions (nitrogen-based) by 64% (25 in FY13 to 9 in FY15). The last 3 months of FY15 have seen no excursions of any permit parameters.

Reclaimed Water System:

A water reclamation system was designed into the new WTP utilizing 5,000 gallon storage tanks, pumps and yard hydrants. The reclaimed water system was brought online in Apr 14. Potable water use within the plant was replaced with treated/disinfected wastewater, thus eliminating the need for potable water use.

A total of 9,198 kilo gallons of potable water were saved at the wastewater treatment plant in FY15, a 90% reduction from the average monthly use prior to the new WTP going online and resulting in savings of \$50,497. Readings are based on actual meter readings at the plant. The initial investment cost in this system was \$120,200, showing a 2.4 year payback period.

The installed system allows TYAD to meet the requirements of "Reuse of Treated Wastewater Guidance Manual", 385-2188-002, Pennsylvania Department of Environmental Protection, for a Class C reclaimed water system. Future enhancements will allow increasing the quality of this water to Class B or Class A



TYAD has completed installation of its reclaimed water system as part of the upgrades of the Waste Water Treatment Plant.

level, allowing the water to be reused in other non-industrial settings including lawn watering and construction activities.

Water reductions also translate to hazardous material savings with potable water treatment chemicals. It is estimated that the water reclamation system will save approximately 13% of the total TYAD water use. This 13% reduction equates to the following chemical treatment savings:

- Sodium Hydroxide (158 gallons less)

- Orthophosphate (375 pounds less)
- Soda Ash (3,671 pounds less)
- Gas Chlorine (42 pounds less)
- Liquid Chlorine (105 gallons less)

These savings trickle down the supply chain including fewer deliveries to TYAD to resupply the chemicals required.

Mass Transportation Savings:

TYAD continues to sustain the largest mass transit program of all federal government facilities outside of Washington, DC. In FY13-FY15 TYAD was able to increase the percentage of participation by the installation's workforce by 8%. This program resulted in an estimated annual reduction of over 340 tons of carbon monoxide and 13,000 tons of total greenhouse gas emissions. The fuel savings amounts to approximately 1.3 million gallons and \$3.3 million per year

Sustainability through Energy Reduction:

Four Energy Conservation Measures (ECM) were completed during the past 2 years.

- Heat recovery on Building 9 paint booth. Heat recovery coils installed in both the exhaust stack and existing Make-Up Air (MUA) unit for the new paint booth at Building 9.
- Renovate Building 9 Spray Cure Cabins. Steam coils were replaced in the existing old paint booth MUA units with more efficient direct gas-fired duct burners, the existing supply and exhaust fans were upgraded with more efficient fans and motors and controls were added to decrease the airflow rate during cure mode to save on both natural gas consumption and fan energy
- Replace 8 steam-fired MUA Units with gas-fired units at the Industrial Operations Facility (IOF)
- Install New MUA Units with Heat Recovery at Building 74. Two of the new MUA units also included direct expansion (DX) cooling to help maintain the indoor temperature for the material stored in Building 74.

In addition to reducing criteria pollutants (NOx, SOx, VOCs,CO) by over 4.5 tons annually, the energy savings from all of the ECM energy projects that were implemented during this achievement period total 40,714 MMBTUs. When compared to TYADs total energy usage for FY13, these energy initiatives are currently saving approximately 7.5% of TYAD's total energy usage coupled with annual savings of \$354, 151. Energy savings have a direct impact on overhead operating costs, which allow TYAD to pass these savings on to C4ISR weapon system program managers. In addition, these ECM projects have enhanced the comfort and working conditions for mission personnel.

Light Emitting Diode (LED) Lighting Upgrades

In FY14, TYAD began installing LED lighting fixtures throughout TYAD as part of a 5-year program to increase energy efficiency while reducing maintenance costs. TYAD has replaced virtually all exterior lighting with new LEDs that offer a 10-year, 100% factory warranty and also replaced interior fluorescent bulbs with LEDs in 6 warehouse bays (about one acre in size, each). Replacements in more areas are ongoing.

The new lights have eliminated one universal waste stream (sodium vapor lights), reduced the fluorescent bulb universal waste stream by 2250 lbs annually and saves \$6,300 annually, with a correlating reduction of 931 tons of carbon dioxide annually released from off-post energy production facilities. The LEDs also save 1,358,230 KW-hr annually.

MATERIAL MANAGEMENT.

TYAD uses the Hazardous Material Management System (HMMS) to track Hazardous Material (HM) usage, hazardous waste generation and disposal and to exceed environmental regulatory reporting requirements. Under this system, HM is delivered to a storage facility and receives a bar-coded tracking label before being distributed to shops via 15 HM pharmacies. Authorized Use Lists are prepared for each organization, which inform HM pharmacy operators what HM each employee is trained to use and warns of possible unauthorized transactions. The Hazardous Material Review Board (HMRB) reviews all new or proposed HM and works with shops and process engineers to find the least HM to perform a given task. HMRB approval is necessary before any HM can be purchased. The HMMS is used to track HM usage from cradle to grave. Through proper management of the HMMS, TYAD has a sustained HM turn-in rates of over 80%, a measure of proper hazardous material management. In 2014, the American Council of Government Industrial Hygienists reduced the employee exposure threshold for n-propyl bromide 100 fold. Using these processes, TYAD was able to eliminate all n-propyl bromide use, with no impact to mission.

GREEN PROCUREMENT.

TYAD maintains a committed green procurement program through its Buy Recycled Program. This program ensures that all TYAD employees that are responsible for purchasing will seek out recycled-content items first. Employees responsible for purchasing products are given training on the Buy Recycled and Biobased Program. Currently, TYAD maintains a must-buy list of over 190 products that range from copier paper, file folders, toner cartridges to vehicle products, such as re-refined lubricating liquids that require screening for mandated recycled and biobased content percentages to be purchased.

EDUCATION, OUTREACH AND PARTNERING.

The EB has developed a strong relationship with diverse stakeholders in the local community, throughout Pennsylvania and the U.S. These partnerships benefit both TYAD and the local

community in problem solving and developing sustainable solutions to both everyday and complex environmental issues.

TYAD is a charter member of the Pennsylvania Environmental Partnership of Military Installations with United States Environmental Protection Agency (USEPA) Region III and the Pennsylvania Department of Environmental Protection (and other Region III state regulators). It is involved with the local Restoration Advisory Board, the HMMS DoD Program Management Team, the Northeastern Pennsylvania Pollution Prevention Roundtable (through which we share lessons learned and transfer technologies), the Monroe County Solid Waste Advisory Committee and the Pocono Mountains Chamber of Commerce Environmental Committee.

These efforts were recently recognized by EPA Region III, which featured TYAD on its 35th Anniversary Superfund website (<http://www.epa.gov/superfund/superfund-35th-anniversary>) by explaining:

“In addition to the Superfund site cleanup, Tobyhanna Army Depot has worked aggressively to reduce the impact of their operations on the environment by reducing waste and air emissions, conserving water and energy and recycling up to 80 percent of the solid waste stream. Proactive measures include conversion from a central coal-fired heat plant to decentralized natural gas, installation of over 100,000 square feet of vegetative roof to reduce carbon footprint as well as storm water runoff. These and other sustainability efforts have garnered a number of environmental awards from the state, EPA and Army.”.